

- 19 -

CLAIMS

1. A device for improving the following of surface undulations by an agricultural implement coupled to a tractor on a three-point lift system which comprises, in the bottom portion, two arms (7) articulated on a shaft (8) connected to the tractor for the coupling of two lateral bottom points (10) of the implement, and in the top portion at least one third point link element (11) between the tractor and the implement, the arms (7) being controlled by lifting means (M) and the third point link element (11) having an effective length which may vary, the device comprising a means responsive to the angular position of at least one arm, provided to act on the position of at least one of the three implement coupling points (10, 12) relative to the tractor, and a means responsive to the length of the third point link element (11), the assembly being suitable for providing an aggregate signal which serves to control the lifting means (M), characterized in that the responsive means (S) comprises at least a first transducer (T1) associated with an arm (7) to deliver an electric signal dependent on the angular position of that arm, and at least one second transducer (T2) responsive to the length of the third point link element (11) to deliver an electric signal dependent on that length, in that an electric circuit (C) is provided with the transducers (T1, T2) connected in parallel between a power supply terminal (22) and ground, and the signal resulting from the mixing of the signals of the transducers (T1, T2) is sent to an input terminal (29) of a comparator (28), of which another input terminal (30) is connected to ground, the comparator (28)

delivering the control signal at its output.

2. The device as claimed in claim 1, characterized in that the mixing of signals of the transducers is
5 obtained by a parallel connection of the outputs (23, 23') of the transducers to the input terminal (29) of the comparator (28).
3. The device as claimed in claim 1, characterized in
10 that the mixing of signals of the transducers is obtained with an electronic mixer circuit (E), the outputs (23, 23') of the transducers being connected respectively to two input terminals of
15 this electronic mixer circuit (E) which may cause the gains of the signals originating from the outputs (23, 23') to vary one with the other.
4. The device as claimed in claim 3, characterized in
20 that the mixer circuit (E) comprises a means of adjustment (K) of the modulation introduced by the circuit, in particular to take account of the length of the coupled implement (3), and of the distance between the lateral bottom points (10) and the third top point (12).
- 25 5. The device as claimed in claim 1, characterized in that a terminal (31) of the comparator (28) is provided for entering a setpoint value either via a manual command by an operator, or via an
30 automatic command, in particular responsive to wheel-slip.
6. The device as claimed in one of the preceding
35 claims, with lift system whose two arms (7) may have different angular movements, in particular to oscillate in opposition, in order to allow a transverse following of the surface undulations, characterized in that the responsive means (S) comprises two first transducers (T1a, T1b), that

is to say a first transducer associated with each arm (7) to deliver an electric signal dependent on the angular position of that arm.

- 5 7. The device as claimed in one of the preceding
 claims, with lift system comprising an
 intermediate frame (15) with at the top two
 lateral coupling points (16a, 16b) and two third
10 point cylinders (111, 211) extending respectively
 between the two lateral points of the frame and
 the third point (13) connected to the tractor,
 characterized in that two second transducers (T2a,
 T2b) are provided, that is to say a second
15 transducer associated respectively with each third
 point cylinder (111, 211), to deliver an electric
 signal dependent on the length of the associated
 third point cylinder.
- 20 8. The device as claimed in one of the preceding
 claims, characterized in that it is coupled with a
 tractor wheel-slip control device (35, 36)
 comprising at least a third point hydraulic
 cylinder (11; 111, 211) fed at low pressure and
25 transferring to constant length locked mode when
 the rate of wheel-slip exceeds a given limit, thus
 allowing the transfer of load to the tractor when
 the arms are commanded to lift.
- 30 9. The device as claimed in one of the preceding
 claims, characterized in that the transducers (T1,
 T1a, T1b and T2, T2a, T2b) consist of
 potentiometric sensors fitted with three output
 contact plugs (d1, d2, d23) corresponding to the
 two extreme points of a resistor (21) and to a
35 cursor (23).
10. The device as claimed in claim 9, characterized in
 that a connector (J1, J2) is provided to make the
 connection with the contact plugs, and in that

cables (F1, F2) furnished with connectors (J1, J2) at one end are connected to the circuit (C).

11. The device as claimed in claim 9 or 10,
5 characterized in that the connectors corresponding to the transducers have their wires connected together to culminate at an output contact plug (D1, D2) to carry out a mixing of the signals of the transducers, the contact plug (D1, D2) being
10 capable of being connected to a connector (J1, J2).
12. The device as claimed in claim 7, characterized in
15 that it comprises connectors (J2a, J2b) associated with each second transducer (T2a, T2b) and connected in parallel to the terminals of a contact plug (D2) which may interact with a connector (J2).